

# **Manufacturing Blocking Discipline: A Multi-Criterion Approach For Buffer Allocations**

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## **Summary**

In this paper, a single-item, multi-stage, serial production system is considered. Materials in the system are controlled by manufacturing blocking discipline (MBD). A fixed total number of buffers over a given number of serial workstations is allocated. Three conflicting objectives, the average throughput rate (to be maximized), the average work-in-process (to be minimized), and the average system time (to be minimized) are considered. Stochastic system simulation is used to generate the efficient set of buffer allocations. Then analytic hierarchy process (AHP) is utilized to identify the most-preferred allocation. Sensitivity analysis for allocating buffer with respect to the three conflicting objective is also investigated. An illustrative example is given.

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